

REMARKS

Claims 1-16 are now pending in this application. Claim 10 is withdrawn. Claims 1-9 and 11-15 are rejected. New claim 16 is added. Claims 1-6 and 8-14 are amended herein to place them in better form. The specification and abstract have been amended to place them in better form. No new matter has been added.

The Office Action requests that the specification be amended to include appropriate headings. The specification has been amended, as appropriate.

Claims 9, 12, and 13 have been rejected under 35 U.S.C. § 112, second paragraph, as indefinite. The Office Action states that the claims are generally narrative and indefinite and states that the claims do not specifically recite what is being cooled. Claims 9, 12, and 13 have been amended to be in better form.

Claims 1-9, and 11-15 have been rejected under 35 U.S.C. § 112, second paragraph, as indefinite. The Office Action states that the term "liquid energy carrier" is not defined anywhere. The Office Action states that the term "synthesis apparatus" creates indefiniteness because it is not clear what is meant by, for example, feeding a gas to the synthesis apparatus.

Regarding "liquid energy carrier", it is Applicants' position that such term is known in the art and that one of ordinary skill in the art would know its meaning. Applicants hereby provide copies of old and recent documents which demonstrate that it is a term known in the art. Enclosed please find copies of the following: U.S. Patent No. 1,952,520 (see page 1, column 1, lines 49-50), the Abstract for *Methanol*

from atmospheric carbon dioxide: A liquid zero emission fuel for the future, and the Abstract for *Steps toward the hydrogen economy*. All three documents use the term "liquid energy carrier" and therefore such term is an appropriate term. During conversations between the Examiner and Applicants' attorney, the Examiner has expressed the preference for the term "liquid fuel" rather than "liquid energy carrier" since the specification discloses on the first paragraph of page 1 that ethanol (which is a liquid fuel) is an example of a liquid energy carrier. In order to expedite the prosecution of the above-identified patent application, the claims have been amended to include the term "liquid fuel" instead of "liquid energy carrier". Applicants hereby state that the use of the term "liquid fuel" in the claims is intended to be synonymous with the term "liquid energy carrier" and no change in scope is intended. As for the term "synthesis apparatus", Applicants believe that such term is definite since it is clear that the synthesis occurs in the synthesis apparatus. Applicants have also amended the claims to be generally in better form, where appropriate.

Claims 1-9 and 11-15 have been rejected under 35 U.S.C. § 103(a) as obvious over U.S. Patent Publication No. 2002/0087037 (Kaneko et al.) in view of U.S. Patent Publication No. 2003/0083390 (Shah et al.) and further in view of Unit Processes and Principles of Chemical Engineering, Chapter 1, pp. 1-3 (Olsen et al.).

To establish a *prima facie* case of obviousness, it is necessary to show that all the claim limitations are taught or suggested by the prior art. *See In re Royka and Martin*, 180 USPQ 580, 583, 490 F.2d 981 (CCPA 1974).

Claim 1 recites feeding the off-vapor from the drying apparatus to the gasification process. Kaneko et al., which is relied upon by the Office Action for the disclosure of a dryer, does not disclose or suggest that the dryer is generating any off-vapor that is usable as steam in the gasification apparatus. The Office Action relies on the disclosure of the reutilization of the tail gas in Shah et al. as support for the reutilization of off-vapor from the drying apparatus in Kaneko et al. However, the tail gas of Shah et al. is not analogous to off-vapor from a dryer and one of ordinary skill in the art would know this since they originate at very different points in the processes and have very different compositions. Additionally, there is no disclosure or suggestion in the cited references for off-vapor from the dryer of Kaneko et al. to be passed to the gasification furnace. Accordingly, *prima facie* obviousness has not been demonstrated.

Claim 1 also recites feeding at least part of the residual gas obtained in the synthesis apparatus to the gasification process in the gasification apparatus. Kaneko et al. fails to disclose or suggest this limitation and the Office Action relies on Shah et al. for this teaching. However, the Office Action has not identified any disclosure in Kaneko et al. or other disclosure in a cited reference that the discharge gas 9 of Kaneko et al. would be useful in the gasification process. The comparison between the process in Kaneko et al. and Shah et al. is not appropriate since the procedures for producing liquid fuel are different as can be seen from the fact that reactions(1)-(3) in paragraph [0005] of Kaneko et al. are different from the reactions (1) - (2) in

paragraph [0004] of Shah et al. Thus, one of ordinary skill in the art would not be prompted to combine the processes since they are not the same. Indeed, the tail gas in Shah et al. contains unreacted syngas which includes CO (see paragraph [0007] of Shah et al.) while Kaneko et al. specifically discloses on paragraph [0061] that no carbon monoxide is present. Accordingly, the tail gas in Shah et al. is not the same as the discharge gas in Kaneko et al. and they are therefore not interchangeable. Accordingly, *prima facie* obviousness has not been demonstrated for this reason as well.

Additionally, the Office Action's reliance on paragraph [007] of Shah et al. is insufficient since the disclosure of the tail gas being used in the gasification unit in Shah et al. is merely a possibility and not a requirement. Moreover, in the present invention the residual gas is not utilized in the sense of waste since at least part of the residual gas obtained in the synthesis is used in the gasification process. The present invention is not concerned with a residual gas, rather, it is concerned with a portion of the gas which is obtained in the synthesis and which is also not combusted in the gasification apparatus. Such gas obtained in the synthesis supports the gasification qualitatively in an advantageous manner.

Regarding the dependent claims, the Office Action broadly cites to Olsen for the proposition that recycling heat is known in the art. The Office Action's statement that recycling of heat is known in the prior art is too broad of a statement to disclose or suggest the particular limitations of the present invention. The courts have made

clear that obviousness requires that all the limitations be taught or suggested by the prior art. Generalized disclosures are insufficient to meet this burden. The Supreme Court has made clear that rejections on obviousness grounds "cannot be sustained by mere conclusory statements". *See KSR International Co. v. Teleflex Inc. et al.* 82 USPQ2d 1385, 1396 (2007).

Furthermore, Olsen discloses in the paragraph bridging pages 1-2 that the recovered heat is obtained from exothermic processes or from condensers. The Office Action has not identified where in Kaneko et al. it is disclosed that excess heat is present in exothermic processes or in condensers. Olsen does not disclose any other heat being recovered. The Supreme Court has explained the importance of identifying a reason to combine the elements in the way the claimed new invention does. *See KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (U.S. 2007). No such reason has been provided by the Office Action and one of ordinary skill in the art would not make such combination. Accordingly, *prima facie* obviousness has not been demonstrated for this reason as well.

Also, the Office Action has not identified any disclosure in Kaneko et al. of excess heat being present which can be recycled. The disclosure on page 3 of Olsen about recovered heat does not specify where the heat is recovered from nor where it is recovered to and this disclosure cannot be used to piece together the present invention. The general disclosure of Olsen is insufficient to make obvious the

recitation of the present claims since the USPTO has the burden of showing the disclosure or suggestion of every element.

Regarding claim 2, the Office Action has not addressed the presence of a combustion apparatus in addition to the limitations recited in claim 1.

Regarding claim 3, the Office Action does not address the conditioning of the carbon carrier.

Regarding claims 4, 5, 6, 8, 13, and 15, the Office Action has not identified where each element of each claim is disclosed or suggested in the cited art. Accordingly, *prima facie* obviousness has not been demonstrated over these claims.

Regarding claim 14, the Office Action has not identified where in the prior art is disclosed a heat collection apparatus.

Additionally, claims 2-9 and 11-15 are patentable at least for the reason that they depend from a patentable base claim. *See In re Fine*, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988).

Claims 1-6, 8-9, and 11-14 are amended herein to place them in better form. Support for the amendments is found in, for example, the claims as filed.

New claim 16 has been added, support being found in, for example, Figure 1 of the specification as filed.

New claim 16 is patentable at least for the reason that it depends from a patentable base claim and also because the cited art fails to disclose or suggest the recitations of claim 16.

Applicants respectfully request a two month extension of time for responding to the Office Action. **The fee of \$230.00 for the extension is provided for in the charge authorization presented in the PTO Form 2038, Credit Card Payment form, provided herewith.**

If there is any discrepancy between the fee(s) due and the fee payment authorized in the Credit Card Payment Form PTO-2038 or the Form PTO-2038 is missing or fee payment via the Form PTO-2038 cannot be processed, the USPTO is hereby authorized to charge any fee(s) or fee(s) deficiency or credit any excess payment to Deposit Account No. 10-1250.

In light of the foregoing, the application is now believed to be in proper form
for allowance of all claims and notice to that effect is earnestly solicited.

Respectfully submitted,
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enc: Marked Specification
Substitute Specification
U.S. Patent No. 1,952,520
*Abstract for Methanol from atmospheric carbon dioxide: A liquid zero
emission fuel for the future*
Abstract for Steps toward the hydrogen economy.
Form PTO-2038